

ABSTRACT

[042] A process to produce stabilized zirconia from a solution of zirconium salt and a stabilizing agent. The zirconium salt may include zirconium oxysulfate, zirconium oxychloride, zirconium oxynitrate, zirconium nitrate, and other water-soluble zirconium salts. The stabilizing agent may include calcium, magnesium, yttrium salts of oxides and rare earth oxides. The process is conducted by evaporation of the solution above the boiling point of the solution but below the temperature where there is significant crystal growth. The evaporation step is followed by calcination to produce the desired nano-sized structure. Further processing by sintering may be applied to produce solid structures or by milling and classification to produce material for thermal spray coating.